USER MANUAL

WVG4A

PTN VGA/Stereo Audio Selection Switcher 4x1

Version: WVG4A2013V1.1

NOTICE: Please read this user manual carefully before using this product.

This manual is for operation instruction only, not for any maintenance usage. The functions described in this version are updated till May 2013. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

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All product function is valid till 2013-05-24.

Update History

Version	Date	Update Content
1.0	2013.01.06	First version.
1.1	2013.05.24	Modified the system diagram.

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1. Introduction

1.1. Introduction to WVG4A

WVG4A is a 4x1 selection switcher for VGA & stereo audio. It supports auto-switching and has a bandwidth up to3200*2400@60MHz. And the audio can be breaked away. It's a high performance device for conference room, educational facility, multi-media meeting room, demonstration hall etc.

1.2. Package Contents

- 1 x WVG4A
- 2 x Mounting Ears (separated from WVG4A)
- 4 x Screws
- 1 x Power adapter (DC12V)
- 1 x RS232 cable
- 1 x User Manual

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Features

- Super bandwidth at 1GHz
- Support resolution up to 3200*2400@60MHz.
- Auto-switch function.
- Audio volume and EQ control.
- Ultra-switching for instaneous display.
- Built-in gain compensation and sync signal proofread technology
- Controllable via auto-switch, button & RS232.

3. Specification

Video Input		**Video Output**	
Input	4 VGA	Output	1 VGA
Input Connector	VGA (female 15 pin HD)	Output Connector	VGA (female 15 pin HD)
Video Signal	RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video	Video Signal	RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video
Video General			
Resolution Range	3200x2400@60Hz(-3 dB) 0~10MHz is +0.1dB to -0.1dB 0~130MHz is +6dB to	Bandwidth	1GHz (-3dB) full loading

	-0.8dB		
Return Loss	-30dB@5MHz	Crosstalk	-50dB@5MHz
Switching Speed	200ns (Max.)	Input/Output Level	0.5Vp-p ~ 2.0Vp-p
Gain	0dB	I/O Impedance	75Ω
Audio Input		**Audio Output**	
Input	4 stereo audio	Output	1 stereo audio
Input Connector	3.5mm mini jack connector	Output Connector	3.5mm mini jack connector
Audio Input Impedance	>10KΩ	Audio Output Impedance	50Ω
Switching Speed	200ns (Max.)	Output Volume	61 degree controllable(0~61)
		Output Bass	15 degree controllable(-7~+7)
		Output Treble	15 degree controllable (-7~+7)
Audio General			
Frequency Response	20Hz~20KHz	Stereo Channel Separation	>80dB@1KHz
CMRR	>90dB @20Hz to 20K Hz	Switching Solution	Audio break away switching
Control Parts			
Control /Remote	Buttons; RS-232 (9-pin female D connector)	Pin Configurations	2 = TX, 3 = RX, 5 = GND
Options	TCP/IP control by PTNET		
General			
Max DC compensation	1.5V	Power Consumption	10W
Temperature	-20 ~ +70℃	Humidity	10% ~ 90%
Power Supply	DC 12V	Product Weight	0.4Kg
Case Dimension	W166 x H42x D100mm		

NOTE: All nominal levels are at ±10%.

4. Operations of the Control Panel

Press the buttons “1,2,3,4” to switch the inputs, audio/video sync-switching.

Press the buttons “Up”, “Down” to control the output volume up/down. (not including the bass/treble setting)

Press the button “1” for 3 seconds, WVG4A will enter the auto-switching mode. The LED light of “Auto-SW” will be on. Please check the index”*Auto-switching Function*” for the auto-switching principle.

And, pressing the button “1” for another 3 seconds, to quit the auto-switching and return to the manual-switching mode. The LED light of “Auto-SW” will be off.

Under the “auto-switching” mode, the other front panel buttons can’t be used. But, the RS232 port is still available for controlling.

5. System Connection

5.1. Interface Connection

① Power indicator. It will keep on red when power on.
② Auto-SW, Auto-switching mode indicator. When press and hold on the button input 1 for 3 seconds, WVG4A then begins auto-switching mode, and the indicator turns on. If press the button input 1 for 3 seconds again, WVG4A will begins manual-switching mode, and then the indicator will turn off.
③ Video source selection buttons. You can select the video/audio source by these four buttons.
④ Volume buttons. “UP” is for volume up, and “DOWN” is for volume down. Bass and treble are not supported.
⑤ VGA input ports, 4 in total, including video input and stereo audio input.
⑥ VGA output port, including video input and stereo audio input.
⑦ RS232 serial control port, used for RS232 command controlling.
⑧ Power interface, used to access into a DC12V power supply.

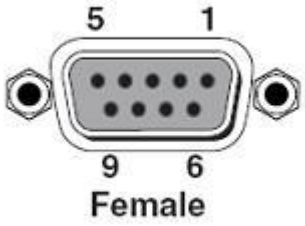
Note: Under the “auto-switching” mode, the other front panel buttons can’t be used. But,

the RS232 port is still available for controlling.

5.2. Connection with Control System

With the RS-232 port, the switchers can be control by several kinds of control systems.

This RS-232 communication port is a female 9-pin D connector. The definition of its pins is as the table below.

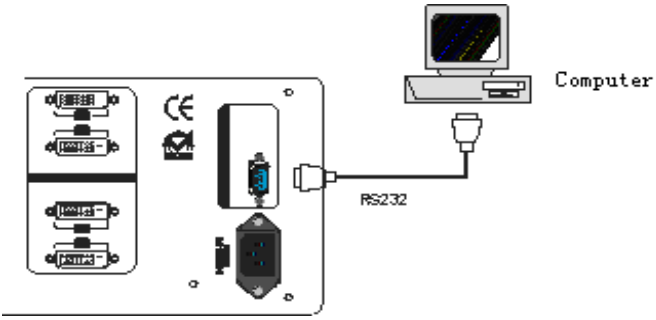


No.	Pin	Function
1	N/u	Unused
2	Tx	Transmit
3	Rx	Receive
4	N/u	Unused
5	Gnd	Ground
6	N/u	Unused
7	N/u	Unused
8	N/u	Unused
9	N/u	Unused

5.3. Connection with Computer

Please connect reference to the following contents.

1) Use a RS232 control line to connect the COM1 or COM2 port of the computer to the RS232 interface of WVG4A.



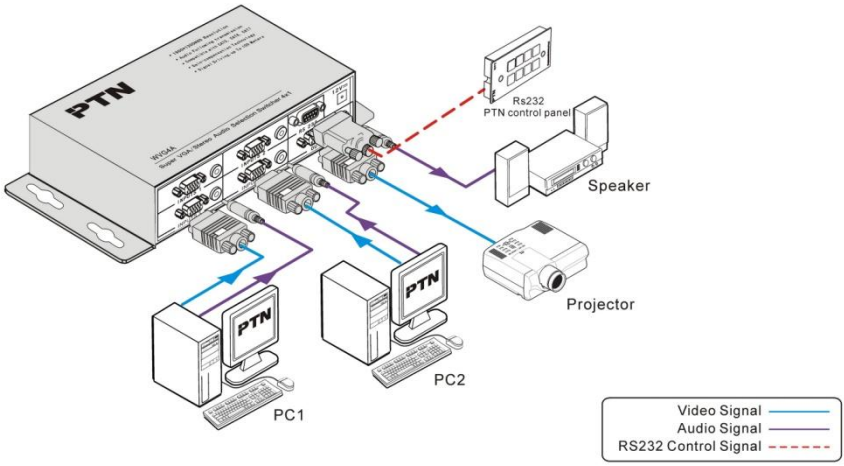
2) Install the serial driver.

3) Run the COM software and check the connecting state.

4) If it's OK, then we can control WVG4A by sending RS232 command codes. If not, probably the control line is bad contact.

6. System Diagram

DIAGRAM



7. Auto-switching Function

Under the auto-switching mode, WVG4A will detect the input source and switching automatically, following some priority principle:

1: Priority of the new connection

When you connect a new valid VGA source to WVG4A, under the auto-switching mode, WVG4A will switch to this new source.

2: Priority of power reboot or VGA signal removing

When the power is rebooted under the auto-switching mode, WVG4A will detect the 4 VGA input ports, ranging from input1, input2, input3, input4. When it finds a valid VGA signal, it will switch to this channel.

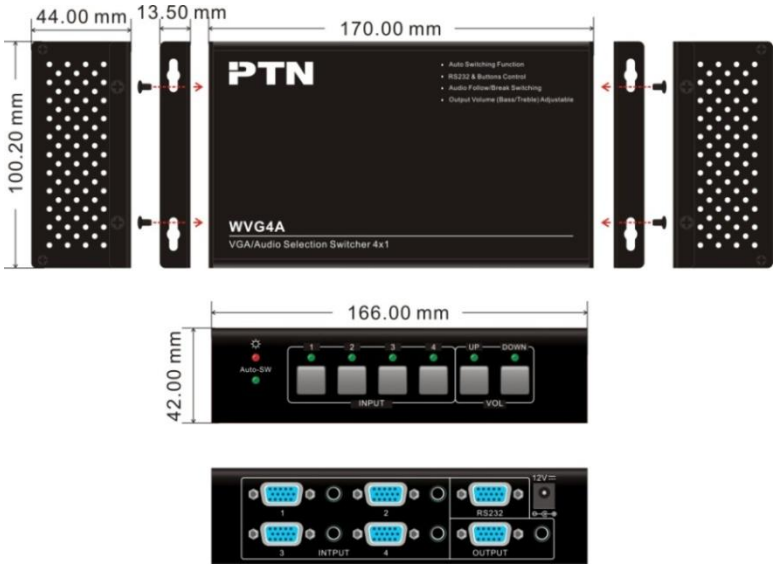
When the displaying input is removed under the auto-Sw mode, WVG4A will detect the 4 VGA inputs, ranging from input1, input2, input3, input4. When it finds a valid VGA signal, it will switch to this channel.

Under the auto-switching mode, the video/audio is switching synchronization only, not separately switching.

EXAMPLE:

- Connect the input 2 and input 4 ports to the source devices, press and hold on the front key **INPUT 1** for 3 seconds, the LED indicator **Auto-SW** will be on. Then WVG4A begins to run in auto-switching mode.
- WVG4A detects the signal from the port input 1 to input 4 one by one. When it detects that input 1 is not available, and then it turns to detect input 2. When it detects that input 2 has a higher priority and it is available, then it will choose input 2 to output. The LED indicator of **INPUT 2** on the front panel will be on.
- Connect the port input 3 with a source device, and then WVG4A will choose input 3 to output.
- Remove the source device from input 3, WVG4A will detect from input 1 to input 4. And when it detects that input 2 has the highest priority and it is available, it will choose input 2 to output.
- Cut off the power of WVG4A, then reboot. As WVG4A is in auto-switching mode, then it will choose input 2 to output.

8. Panel Drawing



9. Communication Protocol and Command Codes

Communication protocol: RS232 Controlling Protocol **Command Type**: ASCII

Baud rate: 9600 Date bit: 8 Stop bit: 1 Parity bit: none

Commands	Function Description	Return Code
7[xx]%	Preset the volume level, the [xx] is ranging from "00" to "60".	Volume :31
8[xx]%	Preset the bass level, the [xx] is ranging from "00" to "14".	Bass : 01
9[xx]%	Preset the treble level, the [xx] is ranging from "00" to "14".	Treble : 01
[x]B1.	Switching both Audio and Video, the [x] is ranging from "1" to "4".	AV: [x] -> 1
[x]V1.	Switching Video only, the [x] is ranging from "1" to "4".	V: [x] -> 1
[x]A1.	Switching Audio only, the [x] is ranging from "1" to "4".	A:[x] -> 1
0B0.	Mute the output of video/audio	Mute Output
0V0.	Mute(cut) the output of video	Mute Video
0A0.	Mute(cut) the output of audio	Mute Audio
0B1.	Unmute the output of video/audio	Unmute Output
0V1.	Unmute (cut) the output of video	Unmute Video
0A1.	Unmute (cut) the output of audio	Unmute Audio
600%	Checking the working status (switching status, volume status, audio setting status.)	V: 1 -> 1 A: 1 -> 1 Volume :30 Bass +00 Treble +00
601%	Jump to the Auto-Switching mode	Auto Switch
602%	Jump to the regular switching mode	Manual Switch
603%	Volume Up (61 degrees)	Volume :31
604%	Volume Down (61 degrees)	Volume :30
605%	Bass Up (15 degrees)	Bass 07
606%	Bass Down (15 degrees)	Bass 08
607%	Treble Up	Treble +01
608%	Treble Down	Treble +00
609%	Initialization the setting. It return to the regular switching (switching/volume/bass/treble)	V: 1 -> 1 A: 1 -> 1 Volume :30 Bass +00 Treble +00

10. Troubleshooting & Maintenance

1) When there is no output images/sounds:
- Check if there is any signal at the input.
- Check if there is any signal at the output.

We can check these by using an oscilloscope or a multimeter. If there is no signal input/output, maybe the input/output cables broken or the connectors loosen, please change for another cable.
- Make sure the destination device is exactly on the controlled output channel.
- If not the problem mentioned above, probably there is something broken inside the unit, please send it to the dealer for repairing.

2) If the **POWER** indicator doesn't work or no respond to any operation, please make sure the power cord connection is good.

3) If the output image/sound is interfered, please make sure the system is grounded well.

4) If the static becomes stronger when connecting the video/audio cables, it probably due to the incorrect grounding, please correct it otherwise it would damage the switcher.

5) If the switcher cannot be controlled by the buttons on the front panel or the RS232 port, the switcher may have broken. Please send it to the dealer for repairing.

11. Safety Operation Guide

In order to guarantee the reliable operation of the equipments and safety of the staff, please abide by the following proceeding in installation, using and maintenance:

1) The system must be earthed properly. Please do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.

2) Do not put the switcher in a place of too hot or too cold.

3) As the power generating heat when running, the working environment should be maintained fine ventilation, in case of damage caused by overheat.

4) Cut off the general power switch in humid weather or left unused for long time.

5) Before following operation, ensure that the alternating current wire is pull out of the power supply:
- Take off or reship any components of the equipment.
- Take off or rejoin any pin or other link of the equipment.

6) As to non-professional or without permission, please DO NOT try to open the casing of the equipment, DO NOT repair it on your own, in case of accident or increasing the damage of the equipment.

7) DO NOT splash any chemistry substance or liquid in the equipment or around.

12. After-sales Service

1) If there appear some problems when running WVG4A, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

2) You can email to our after-sales department or make a call, please tell us the following information about your cases.
- Product version and name.
- Detailed failure situations.
- The formation of the cases.

3) We offer products for all three-year warranty, which starts from the first day you buy this product (The purchase invoice shall prevail).

4) Any problem is same with one of the following cases listed, we will not offer warranty service but offer for charge.
- Beyond the warranty.
- Damage due to incorrectly usage, keeping or repairing.
- Damage due to device assembly operations by the maintenance company non-assigned.
- No certificate or invoice as the proof of warranty.
- The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- Damage caused by force majeure.

Remarks: For any questions or problems, please try to get help from your local distributor, or email PTN at: support@PTN-electronics.com.